

REMARKS

Reconsideration of the present application is respectfully requested.

Applicants note that the Examiner indicated the foreign priority documents have not been received. However, these foreign priority documents were submitted with Application No. 09/525,514 (the parent application). Therefore, Applicants are not required to resubmit the foreign priority documents. (See MPEP 201.14(b), Aug. 2001). Accordingly, Applicant respectfully requests that the foreign priority documents be noted as having been received.

Applicants also request confirmation that the 37 C.F.R. 1.53(d)(4) included in the Preliminary Amendment of March 7, 2002 has been accepted and that the three inventors Applicants requested to be deleted have in fact been deleted.

The title of the invention has been objected to as not being descriptive. Applicants have amended the title to describe the invention in a more descriptive manner.

Therefore, because the amended title describes the invention in a more descriptive manner, it is respectfully requested that the objection to the title be withdrawn.

The drawings have been objected to as not being clear which figure relates to the final structure being claimed. FIGS. 13A – 13E most specifically relate to the structure being claimed. Applicants respectfully submit that other figures such as, for example, FIG. 1 show exemplary methodology for fixing a protective sheet 1 to a jig 4 and relate to the structure as being claimed. However, FIGS. 13A – 13E are most pertinent to the pending claims.

Therefore, because Applicants have pointed out that FIGS. 13A – 13E relate to the final structure as being claimed, it is respectfully requested that the objection to the drawings be withdrawn.

Claims 21 – 38 have been rejected under 35 U.S.C. 112, second paragraph as being indefinite. More specifically, it has been asserted in the third paragraph of pgs. 2 – 3 of the office action that it is unclear how the movable portion relates to the final structure and that the movable portion relates to the process and not the final structure. Applicants respectfully traverse this assertion.

A movable portion 61 is disclosed on, for example, pg. 6, lines 17 – 20 in which it is stated that the movable portion may be a surface micro-processed type acceleration sensor, a rotation angle sensor, and a reflecting digital micro-mirror projector. As shown in FIG. 13A, the movable portion 61 is included in the original silicon wafer 11 and also, as shown in FIG. 13E, the movable portion 61 is also a part of the final semiconductor chip 500. Therefore, Applicant respectfully disagrees with the assertion that the movable portion relates to the process and not the final structure.

Therefore, because the disclosure clearly discloses what the movable portion is and that it is in the final structure (the semiconductor chip 500), it is respectfully requested that the rejection of claims 21 – 38 under 35 U.S.C. 112, second paragraph be withdrawn.

Claim 21 has been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,333,565 to Hashimoto. This rejection is respectfully traversed.

Applicants note that it was stated in the fifth paragraph of pg. 3 of the office action that the language “semiconductor chip provided by cutting a semiconductor wafer by dicing” and “the protective member being for protecting the semiconductor chip when the semiconductor wafer is cut by dicing” were not given any patentable weight. In accordance with this statement, Applicants have amended claim 21 to delete this language.

Claim 21 recites the novel embodiment disclosed, for example, on pgs. 17 – 19 in which a semiconductor chip 500 includes a bump 70 disposed on a front surface, a protective member 73 disposed on the front surface having an opening portion 72 that exposes the bump 70 and a movable portion 61 disposed in a region protected by the protective member 73.

Hashimoto discloses a semiconductor device 50 that includes an external electrode (bump) 62 disposed on conductive foil 60, a solder resist layer 64 disposed on a semiconductor chip 52 that exposes the external electrode 62. The conductive foil 60 is disclosed as being movable. However, Hashimoto fails to teach or suggest that the conductive foil 60 is disposed in a region that is protected by the solder resist layer 64. Rather, as clearly shown in FIG. 8B, Hashimoto discloses that the conductive foil 60 is disposed below an opening in the solder resist layer 64.

Therefore, because Hashimoto fails to teach or suggest that the conductive foil 60 is disposed in a region that is protected by the solder resist layer 64, it is respectfully requested that the rejection of amended claim 21 under 35 U.S.C. 103(a) be withdrawn.

New claims 39 – 40 are presented for examination. These claims recite features that further distinguish the present invention from the art of record. Support for new claims 39 – 40 can be found in, for example, FIG. 13A.

Further regarding new claim 39, new claim 39 depends from new claim 31. Therefore, new claim 39 should be allowed for the reasons the Examiner indicated that claim 31 contains allowable subject matter.

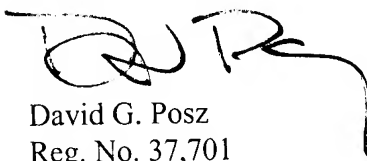
Further regarding new claim 40, new claim 40 depends from amended claim 21. Therefore, new claim 40 should be allowed for the above-mentioned reasons with respect to new claim 21.

The indication of allowable subject matter in claims 22 – 38 is acknowledged and appreciated.

A petition for a two-month extension of time along with the requisite petition fee and information disclosure statement fee are being submitted concurrently with this amendment. No additional fees are believed to be due. However, permission is hereby given to charge any unforeseen fees to Deposit Account 50-1147.

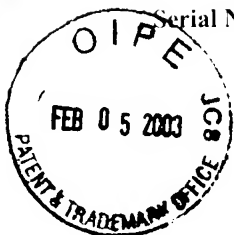
In view of the above amendments and remarks, the present application is now believed to be in condition for allowance. A prompt notice to that effect is respectfully requested.

Respectfully submitted,



David G. Posz
Reg. No. 37,701

DGP/ksc
Law Offices of David G. Posz
2000 L Street, NW
Suite 200
Washington, DC 20036
(202) 416-1638
Customer No. 23400



MARKED-UP VERSION OF THE AMENDMENTS

IN THE TITLE

Please replace the title with the following:

A SEMICONDUCTOR DEVICE [AND METHOD OF PRODUCING THE SAME BY
DICING] HAVING A MOVABLE MEMBER THEREIN AND A PROTECTIVE
MEMBER DISPOSED THEREON

IN THE SPECIFICATION

Please amend the paragraph beginning on pg. 12, line 1 and ending on pg. 12, line 13 with the following:

Next, at a wafer bonding step shown in FIG. 3E, the semiconductor wafer 11 is bonded to the protective sheet 1 so that the pad portions 21 are exposed to the opening portions 23. Accordingly, both the pad portions 21 and dicing-cut portions 22 are exposed to the respective opening portions 23. The other procedure at the wafer bonding step is substantially the same as that in the first embodiment. In the present embodiment, because the protective members 14 need not be removed, the protective sheet 1 can be bonded firmly. This is preferable to prevent the separation of the protective sheet 1. It is not always necessary to expose the pad portions 21 entirely. The pad portions 21 may be partially exposed from respective [windwos] windows for wire bonding.

Please amend the paragraph beginning on pg. 19, line 25 and ending on pg. 20, line 8 with the following:

When the bumps 70 are made of eutectic solder, the melting point of the eutectic solder is approximately 180 °C. In this case, preferably, the base constituting the protective member 73 is made of heat resistant resin such as polyimide, and [silicone] silicon adhesive is used as the adhesive described above. The bumps 70 can be made of solder including In, a melting point of which is lower than that of eutectic solder. The bumps 70 and the conductive layer 81 can be connected to each other in a solid phase by thermal compression bonding at a lower temperature. Otherwise, the bumps 70 may be connected by silver paste, which is generally used for fixation of chips onto a substrate.

IN THE CLAIMS

Please amend claim 21 as follows:

21. (Amended) A semiconductor device comprising:

a semiconductor chip [provided by cutting a semiconductor wafer by dicing];

a bump disposed on a surface of the semiconductor chip;

a protective member disposed on the surface of the semiconductor chip, the protective member having an opening portion from which the bump is exposed[, the protective member being for protecting the semiconductor chip when the semiconductor wafer is cut by dicing]; and a movable portion disposed on a region that is covered by the protective member.